LOUISIANA Conservationist

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Conservation Pledge

I give my pledge as an American to save and faithfully to defend from waste the natural resources of my country—its soil and minerals, its forests, waters and wildlife

Published Bi-Monthly in the interest of conservation of Louisiana's natural resources by the Wild Life and Fisheries Commission, P. O. Box 44095, Capitol Station, Baton Rouge, Louisiana 70804.

Small game surveys conducted by the state show that the number of rabbit hunters in the State have increased more than 100 per cent during the past 13 years. Interest in beagles has also increased at a similar rate and there are a number of beagle clubs throughout the State. Cover photograph shows a successful hunter holding a cottontail while beagles leap and bark.

(Photograph by Robert Dennie)

LOUISIANA Conservationist

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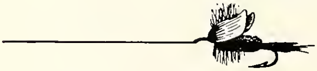

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Conservationist EDITORIAL

As we enter 1969, there are many challenges that will confront the Louisiana Wild Life and Fisheries Commission. They range from diminishing woodlands to accelerated pollution. These are signs of the times and are realities that cannot be ignored. A sound conservation program is one that must be geared to accept reality; but at the same time it should be designed to control as far as possible inroads into the recreational and economic aspects of wildlife and fisheries resources.

Much progress has been made in the last year. Additional lands have been purchased outright and dedicated for all time to conservation practices and management, as well as public utilization. As funds become available more lands should be acquired in fee by the Louisiana Wild Life and Fisheries Commission. With the passing of the years, this program must take priority if the State is to meet the demands of an ever expanding population, increased interest in outdoor recreation and accelerated commercial use of wildlife and fisheries resources.

During the year past, all phases of research have been expanded. This is particularly true of the research program being conducted at the Marine Research Laboratory at Grand Terre and the Rockefeller Wildlife Refuge. Much has been accomplished in the field of pond culture of shrimp and fish. This may ultimately lead to sustained annual production of shrimp and certain species of salt water fish for commercial use.

Possibly one of the major accomplishments of the year was an initial step to restore the Brown Pelican to Louisiana. While it is still too early to fully evaluate this program, it is felt that progress has been made and eventually the State Bird may again be a familiar sight along the Louisiana coast.

One of the important facets of any sound conservation program is proper enforcement of State fish and game laws. In the year that has now drawn to a close, a new record of enforcement cases has been established. This alone is mute testimony to what might properly be termed a more aggressive and alert Enforcement Division. It is significant to note that the cases made were more evenly distributed throughout the State.

Louisiana has the greatest coastal marshes and estuarine areas in the world. This is the result of geological forces and the real value is known only to a relatively few people. It is a coastal zone of tidal action, subject to constant changes in which Gulf water experiences rapid changes in temperature, salinity, currents, water level and floods.

In spite of these fluctuating conditions and the harshness of the environment, there is a degree of stability that makes the State's estuaries possibly one of the most valuable assets from a fisheries and wildlife standpoint. It is this marsh and estuarine area that produces more fur animals and winters more waterfowl than any other area in North America.

It must be preserved in as nearly its natural state as humanly possible. This has been a vital challenge in the past and will be a continuing fight in the future. The demand for immediate exploitation of resources that are not renewable must be weighed closely against danger to renewable resources that have existed for centuries and with proper management can be utilized for many years to come. This will call for an awareness on the part of the people of Louisiana of the incalcuable value of the State's renewable estuarine resources.

It would be remiss not to mention the outstanding success of our deer restocking and wild turkey stocking programs. The deer program is one that has focused national attention on Louisiana. It is hoped that the turkey program will prove as successful.

In looking back over the accomplishments and glancing ahead at the problems that confront us, there is no better time to call upon all of the people of Louisiana to get behind our present program of sound management of the State's resources, to foster and preserve them. This calls for a united effort. The present record speaks for itself. The future will be based upon the determination and action of those hundreds of thousands of persons who have a stake in wildlife resources and fully realize it. ✢

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A FISHERMAN'S BONANZA

TOLEDO BEND RESERVOIR

Dudley Carver

FISHING ON TOLEDO Bend Reservoir is now in full swing. On this sprawling 182,000 surface acre reservoir, located on the Sabine River between Texas and Louisiana, a fisherman can truly strike it rich if catching fish is his sought after treasure. At the present time, all it takes is a bait dunking outing on Toledo Bend on a good weather day and you are in business.

Toledo Bend reached full pool stage ahead of schedule. Immediately fishermen from all over Louisiana began migrating to Toledo Bend to try their luck. The feasibility report of consulting engineers of Forrest & Cotton, Inc. gave an estimated annual attendance at the reservoir to be about 3,000,000 visitor days. However, if people continue to flock to Toledo Bend this figure will probably be far exceeded. Toledo Bend will best serve the population within a 75 mile radius of the reservoir.

Most Louisiana fishermen now face a new fishing experience. This is fishing a truly large reservoir. Toledo Bend ranks among the top ten largest man-made reservoirs in the United States.

The Toledo Bend Reservoir was stocked with 3,000,000 bass fingerlings jointly by Louisiana and Texas, with each state furnishing 1,500,000. It was felt that the river proper and adjacent oxbow lakes and sloughs would furnish the necessary bream, crappie and catfish. The Commission also stocked striped bass and walleye.

One unique feature of Toledo Bend Reservoir is the fact that it is the largest reservoir ever constructed in the United States without federal funds. Until the construction of Toledo Bend, the largest man-made reservoir in the state was the 15,000 surface acre D'Arbonne Lake located near Farmerville, Louisiana.

Fishing will be a major feature of Toledo Bend Reservoir and will support the brunt of the recreation demand. With this fact foremost in mind and in order to provide the fishermen of Louisiana with the best fishing opportunity possible on Toledo Bend, the Louisiana Wildlife and Fisheries Commission began an intensive pre-impoundment study of Sabine River in 1966.

This is typical of one of the commercial fishing piers being built that will appeal to persons who do not have boats. They will also attract the attention of tourist fishermen passing through the area, providing them with better opportunity to catch fish.

After careful analysis of findings from this study and other studies conducted by Texas Parks and Wildlife Department, a stocking plan was formulated for Toledo Bend Reservoir. Louisiana Wildlife and Fisheries Commission biologists met with Texas biologists and outlined this plan. Since studies revealed that Sabine River supported a high population of forage and rough fish, it was recommended to stock largemouth bass only. This was done to establish a proven native predatory fish as far ahead of the rough and forage fish as possible in order to bring about a favorable balance. Louisiana and Texas jointly stocked the reservoir with 3,000,000 largemouth bass fingerlings in the spring of 1967, with each state furnishing 1,500,000. No other native game fish were stocked in Toledo Bend because it was found that the river proper and adjacent oxbow lakes and sloughs which would be inundated supported sufficient population of bream, crappie, and catfish to adequately stock the reservoir.

Louisiana Wildlife and Fisheries Commission also stocked striped bass and walleye in Toledo Bend Reservoir. These fish are not native to Louisiana. In recent years interest in stocking striped bass in Louisiana lakes has been heightened by the apparent success of introductions in other Southeastern states. This fish utilizes open water areas of lakes and is capable of controlling shad in reservoirs. Toledo Bend Reservoir contains large deep open water which will be largely unsuitable for native game fish, plus an expected shad problem. Approximately 44,000 striped bass fingerlings were stocked in the spring of 1967. This stocking was followed with additional stockings of 14,500 striped bass in May, 1968 and 3,376 in October, 1968. The fingerlings stocked in 1967 were one and one-half to three inches in length while those stocked in 1968 ranged from three to five inches.

There are many former roads such as this one that were inundated when the reservoir filled up. They now serve as excellent boat launching ramps and are heavily utilized by fishermen and boating fans.

In an effort to create a better predator-prey relationship and fill an existing niche in Toledo Bend, Louisiana Wildlife and Fisheries Commission stocked 73,280 walleye fingerlings in the spring of 1967. This stocking was followed by releasing 750,000 walleye fry in May, 1968. Walleye are excellent game fish which can attain a size up to fifteen pounds. They are also prized by anglers because of their excellent food value.

Thus far, no confirmed catches of striped bass or walleye from Toledo Bend have been checked by fisheries biologists. However, we have received several calls from people who thought they had caught one of these fish. D'Arbonne Lake has been stocked with these fish for five years and this past spring fishermen started catching both species. Some of the striped bass that were caught weighed up to six pounds and walleye weighed up to two pounds. Only time will tell if these fish will enter the creel in Toledo Bend. If they do, it will be a major boon to sport fishing in Louisiana.

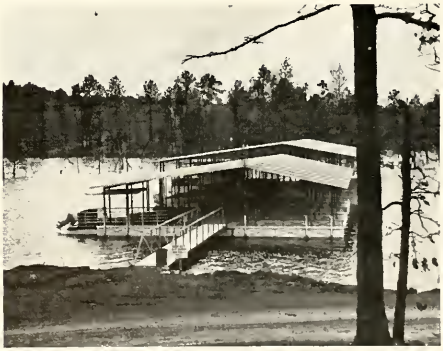
Thus far, bass, crappie, and bream fishing on Toledo Bend can only be described as fabulous. The novice fisherman is catching fish in Toledo Bend like the seasoned professional fisherman. The most ideal habitat for catching bass, bream, and crappie is near the shoreline and the islands that are located out in the reservoir. Toledo Bend is blessed with 1,200 miles of this shoreline habitat. Some bass fishermen have located schools of bass further out in the reservoir in the wooded areas.

Fishermen have had excellent success bringing in limits of largemouth bass. The bass that are presently being caught range from one and one-half to three pounds. The majority of fishermen are catching the smaller bass but the most experienced fishermen have been successful in landing limits ranging from two and one-half to three pounds. Several large bass in the six pound class have been taken. These bass were probably native stock in the river or oxbow lakes and sloughs when the reservoir was flooded. Bass are growing rapidly and catches of four pound bass should be common in the spring of 1969.

Bream fishing has been good, especially in the spring and early summer when these fish were bedding to spawn. Some bream that were caught in the spring weighed as much as 14 ounces. Crappie fishing has been the most fabulous since the reservoir filled. More of these fish have been taken than any other species. Limits of crappie are now being caught that weigh from three-fourths to one pound.

Lots of catfish are being caught on trotlines and by fishermen using cane poles while fishing for other species. Some Opelousas catfish are being caught up to 40 pounds.

If Toledo Bend Reservoir follows the pattern of other lakes in the Southeastern states, fishing will be excellent for approximately 3-5 years.



The above is one of a number of small marinas that have sprung up along the shores of the reservoir. It and others offer covered storage for boats and fuel as well as other accessories needed by fishermen.

After this time fishing success will decline. The reason for this decline is the fish population reaches carrying capacity and is composed largely of mature fish. Also at this point the fishermen cannot harvest the fish heavily enough to keep the population expanding. A young fish population that is growing and expanding is seeking food practically all of the time. When fish are actively seeking food they are easier caught by the fisherman. After a fish population becomes mature the fish feed only enough to maintain their body instead of growing. At this time a decline in fisherman success is noted. This does not mean that the fish population has declined, only catching success. Experienced fishermen, knowledgeable in the preferred habitat of the species they are seeking and its feeding and spawning habits will continue to be successful.

Louisiana Wildlife and Fisheries Commission and the Texas Parks and Wildlife Department have had excellent relations in planning for the management and regulation of the fish and wildlife resources of Toledo Bend Reservoir. Two major accomplishments to date have been the joint stocking of largemouth bass and agreement on reciprocal fishing licenses. Negotiations are presently being conducted on common fishing regulations for all common boundary waters between Louisiana and Texas. The final regulations have not been adopted yet. Louisiana fishermen are reminded to follow creel limits that are presently in effect.

Already the huge reservoir is producing excellent catches and this is a sample. It is hoped that the striped bass and walleye stocking will prove successful. Addition of these two fine fish would certainly enhance what is destined to become one of the best fishing areas ever created.

Sixteen public recreational areas are to be developed on the Louisiana side of Toledo Bend Reservoir. These will be sites for launching boats, parking trailers, fishing, picnicking, hiking, camping, water skiing, hunting and related activities centered around water and woods. At the present time none of these areas are developed and the possibility looks dim for any to be completed for the spring fishing season. Several sites have been purchased and negotiations are under way for the purchasing of land for the other sites.

Privately owned commercial marinas and landings are developing at a rapid rate. Many of these are presently open for business and others will be completed by the spring season. These businesses offer all the needs of the fishermen ranging from automatic fish scalers to hook-ups for camp trailers. The greatest development of commercial operations are near the damsite, Pendleton Bridge near Many, Louisiana and at Logansport, Louisiana.

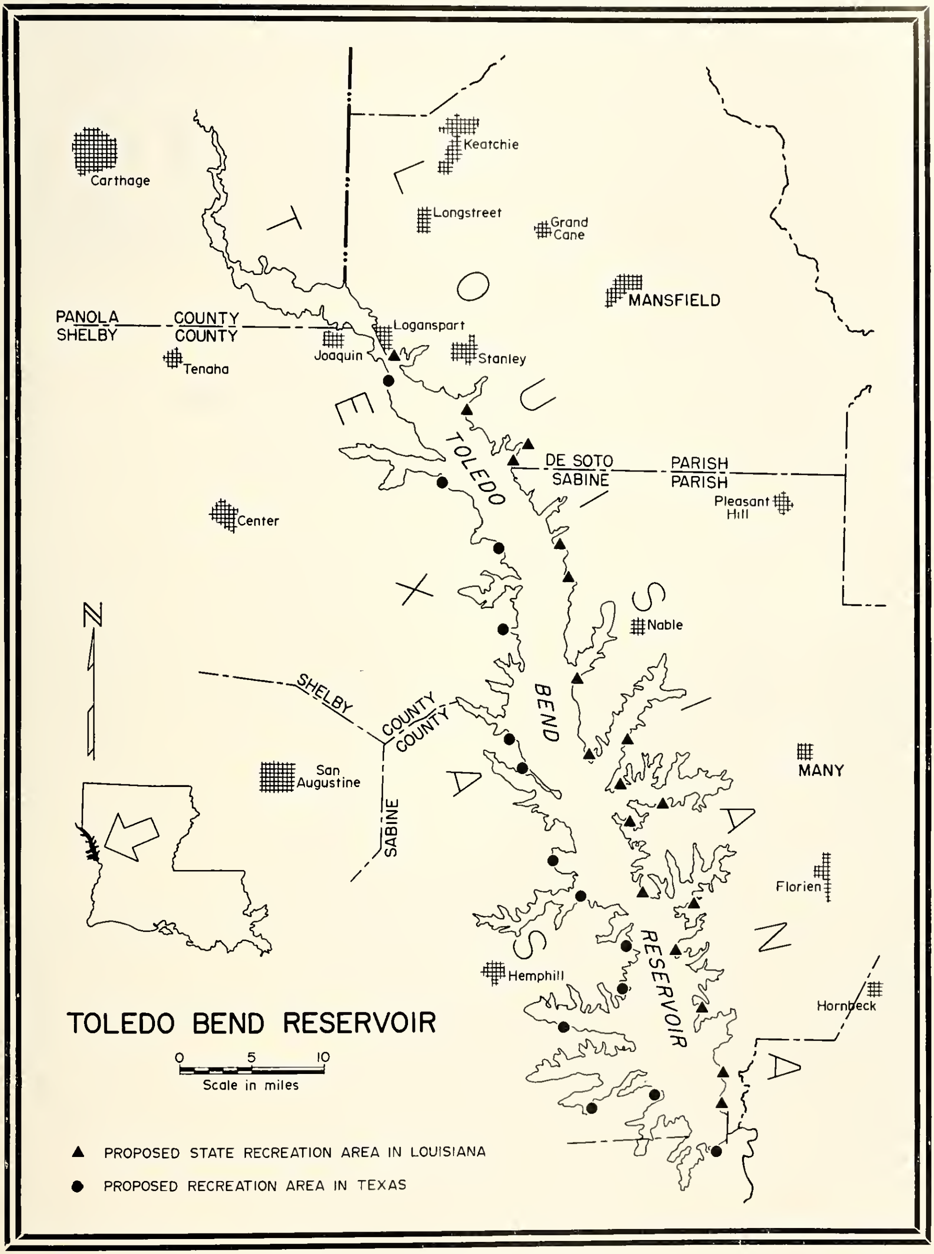
Access to the reservoir is no major problem at the present time and should be much improved by the spring season. A scenic hard-surfaced road leads from the dam around the reservoir and connects with existing hard surface roads to the north. Fishermen can find many places to launch their boats without paying a launching fee by utilizing parish roads that were flooded. They make ideal launching places because they lead into the reservoir with the proper slope desired for launching.

Toledo Bend Reservoir will provide waterfowl hunting opportunities for many people who did not have the privilege of enjoying this sport prior to construction of this reservoir. The presence of the large water area of the reservoir will attract many resting ducks that are in transient to southern marshes of the state. Duck hunting is permitted from blinds only. Permits for blinds are free of charge and are issued by the Sabine River Authority. Applications for duck blinds can be obtained in the parish seats of Vernon, Sabine, and DeSoto Parishes or by writing the office of the Toledo Bend Project, Joint Operation, Route 1, Box 270, Burkeville, Texas.

Waterfowl biologists of the Louisiana Wildlife and Fisheries Commission recommended two resting areas for the ducks to escape gunning pressure. These areas are two miles wide and six miles long. The Sabine River Authority adopted this recommendation and will not issue permits for blind locations in these areas.

Good hunting opportunity for quail, squirrel, dove, rabbit and deer are to be found around Toledo Bend Reservoir and nearby areas. The Louisiana Wildlife and Fisheries Commission's Sabine Wildlife Management Area, located adjacent to the reservoir near Many, Louisiana, is managed for public hunting. If you plan a fishing trip during the hunting season you may wish to make it a joint adventure.

This article may have lead the reader to believe that all is peaches and cream on Toledo Bend concerning fishing. This is basically true at the present time, but let me assure you problems will occur in the future. As problems arise, personnel of the Louisiana Wildlife and Fisheries Commission will attempt to solve these problems in order to maintain the fish and wildlife resources of Toledo Bend Reservoir in a way most beneficial to the sportsmen. ✢


TOLEDO BEND RESERVOIR
0
5
10
Scale in miles
▲ PROPOSED STATE RECREATION AREA IN LOUISIANA
● PROPOSED RECREATION AREA IN TEXAS
N
Carthage
Keatchie
Longstreet
Grand Cane
MANSFIELD
Logansport
Joaquin
Stanley
Tenaha
PANOLA COUNTY
SHELBY COUNTY
DE SOTO PARISH
SABINE PARISH
Pleasant Hill
Center
Noble
SHELBY COUNTY
SABINE COUNTY
San Augustine
MANY
Florien
Hemphill
Hornbeck
TOLEDO BEND RESERVOIR
TEXAS
LOUISIANA

New Wildlife Management Areas

Pointe Au Chien and Salvador

Allan B. Ensminger

As was announced in the November-December issue of the LOUISIANA CONSERVATIONIST, the Louisiana Wild Life and Fisheries Commission completed the purchase of two large tracts of marshland totaling 55,973 acres on October 7, 1968.

This transaction marked the Commission's first purchase of marshland, and the price of $21.00 per acre is the lowest price paid per acre for the land purchased by the Commission in recent years.

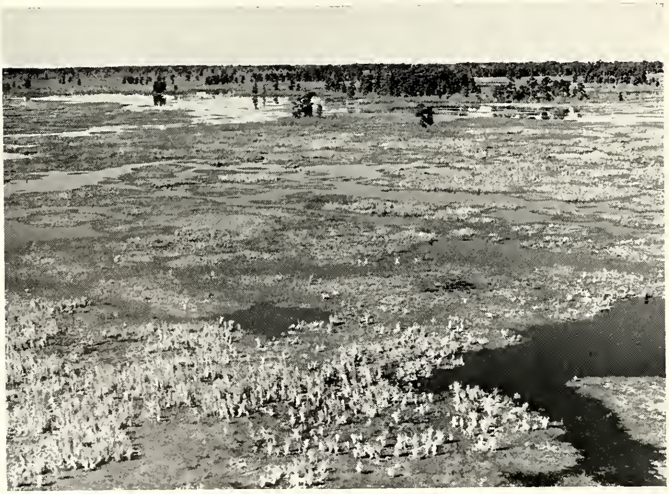
Money for the purchase of the land was provided by the Commission's Conservation Fund whose major source of revenue is from the sale of hunting and fishing licenses and mineral income from the Pass-a-Loutre Waterfowl Management Area.

Acquisition of these two tracts is in keeping with the Commission's long-range program of acquiring land for wildlife purposes and will not only provide the sportsmen of today with a place to hunt and fish, but will assure future generations of Louisiana sportsmen a place to enjoy the recreational opportunities provided by hunting and fishing.

The Commission designated the two areas as the Salvador Wildlife Management Area and the Pointe-au-Chien Wildlife Management Area. The two names are not only useful in locating the two areas geographically, but are also colorful reminders of the Spanish and French influence of the coastal marshes of the State.

The Salvador Wildlife Management Area is located along the northwest shore of Lake Salvador in St. Charles Parish and is comprised of 28,469 acres. This area is primarily a fresh water marsh type and is broken up by numerous marsh ponds throughout the area which provide ideal conditions for production of desirable waterfowl food plants.

Along the northern extremity of the area there are several large stands of cypress timber. These timber stands are growing on old natural stream levees which were once distributary channels of the Mississippi River. Prior to the construction of the present levees along the Mississippi River, annual flood waters flowed out through the old distributary streams such as Bayou Cypriere Longue, Bayou des Saules and Bayou Bois Piquant. These annual flood waters carried tremendous



Ponds and lagoons offer excellent waterfowl hunting. This photograph shows the abundance of aquatics that offer food for waterfowl. Most common marsh plants found on the Salvador Wildlife Management Area are maiden cane, cattail, and bull tongue. There are 28,469 acres in this tract.

The Louisiana Wild Life and Fisheries Commission wasted little time after purchase of two tracts of marshland October 7, 1968, consisting of 55,973 acres, in opening them to public hunting and fishing. This photograph shows the entrance signs of the Salvador Wildlife Management Area going up. Both tracts were opened to the public immediately after signing of the purchase.

loads of fertile silt into the marshes and were instrumental in the creation of the marshes along Lake Cataouatche and Lake Salvador.

The most common marsh plants found on the Salvador Area are maiden cane, cattail, bull tongue, numerous aquatics and woody vegetation such as stands of wax myrtle, black willow and cypress.

Wildlife species on this area are composed of deer, rabbit, squirrels, alligators, rails, waterfowl and fur-bearing animals such as mink, nutria, muskrat, raccoon and otter.

An extensive oil field has been developed roughly in the center of the Salvador Area, and the canals excavated to provide access for this operation have created ideal conditions for excellent fresh water sport fishing. In addition to providing excellent fishing opportunity, these canals will also serve as desirable routes for hunters to reach inaccessible marsh areas for hunting. Through the years numerous trapping and hunting ditches have been dug in the marshes to facilitate transportation for public hunters to penetrate these large marsh areas.

Access to the Salvador Wildlife Management Area is primarily through three major routes. The first, and probably the most utilized, will be through Bayou Segnette from Westwego into Lake Cataouatche and west of the area. The second route is through the Seller Canal to Bayou Verret into Lake Cataouatche.

The third route is through Bayou Des Allemands to the southwest end of the area or on into Lake Salvador and back into the area from Bayou Couba and Lake Cataouatche.

Future management plans for the Salvador Area will be aimed towards creating additional access routes to choice waterfowl hunting areas and the construction of earthen plugs, levees and installing numerous water control structures to regulate water levels throughout the year for management purposes.

Shoreline erosion on Lake Salvador and Lake Cataouatche is a serious problem and one which will require extensive expenditures in order to arrest the encroachment of the lakes upon the marsh areas. An extensive trapping program is being carried out on the area to control fur-bearing animals to protect the marshes from being damaged due to their feeding activities.

A close tabulation of the hunting pressure during the 1968-1969 season has been made and if, in the final analysis, it is decided that additional restrictions on hunting are required, they will be initiated during the 1969 season. During the present season, waterfowl hunting is permitted daily until 12 o'clock noon. Rabbit, squirrel and deer hunting is permitted in conformity with State laws except that deer hunting by the use of dogs is prohibited. Commercial fishing on both of the areas is prohibited.

The Pointe-au-Chien Wildlife Management Area is located approximately 15 miles southeast of Houma in Terrebonne and Lafourche Parishes, and is composed of 27,504 acres. The marshes of this area are slightly brackish due to its relatively close location to the Timbalier Bay complex and

Excellent fresh water fishing is available to sportsmen on the Salvador Wildlife Management Area. The photograph above shows an angler playing a fine bass. In addition to fresh water fishing, the area offers still hunting for deer, rabbit hunting, squirrel shooting, rail and waterfowl hunting, and excellent habitat for alligators and fur-bearing animals such as mink, nutria, raccoon and otter.

This aerial view shows ducks on one of the lagoons in the Pointe-au-Chien Wildlife Management Area that is located in Lafourche Parish and consists of 27,504 acres. The marshes in this tract are slightly brackish, but the wildlife present is similar to that found on the Salvador Wildlife Management Area.

marsh plant communities range from slightly brackish in the northwest corner of the tract to brackish along the southern rim of the area.

This is an ideal situation for the production of tremendous stands of desirable waterfowl food plants such as widgeon grass, southern najas, coco and three-cornered grass.

The marshes of the Pointe-au-Chien Wildlife Management Area were created thousands of years ago as the result of deposition of silt from Bayou Pointe-au-Chien, Bayou Terrebonne and Bayou Lafourche. The only timber stands located on the Pointe-au-Chien Area are adjacent to the old natural bayous and the oil company's levees, and consist primarily of cypress, red maple, willow and wax myrtle.

This aerial view shows one of the existing water control structures found on the Pointe-au-Chien Wildlife Management Area. The tract is broken up by numerous natural streams which will be put under intensive management by construction of numerous low level wakefield type weirs and earthen plugs, to create conditions suitable for the production of desirable waterfowl food plants to attract large concentrations of ducks and geese.

Game species on the Pointe-au-Chien Area are comprised of the same animals to be found on the Salvador Wildlife Management Area with a slight increase in the number of fur-bearing animals. An extensive trapping program is planned for this area in order to control the fur-bearers, and due to the fact that this is brackish marsh habitat, burning of the marshes annually will be part of the management program.

The Pointe-au-Chien Area is broken up by numerous natural streams which can be put under intensive management by construction of numerous low level wakefield type weirs and earthen plugs. An all-out effort will be made by the Commission to establish complete water control over as much of the area as possible in order to create conditions suitable for the production of desirable waterfowl food plants in order to attract large concentrations of ducks and geese during the hunting season.

Extreme care will be exercised in the construction of any new water courses on the area to prevent drainage by the daily tidal fluctuations of water levels.

An analysis of the hunting activities during the 1968-69 season is being made on this area, and final determination of the hunting pressure will dictate future regulations; however, in keeping with the Commission's overall policy, hunters will be provided the maximum amount of quality hunting opportunity with the least possible amount of restriction.

Access to the Pointe-au-Chien Wildlife Management Area can best be gained by driving to Pointe-au-Chien from Houma, Louisiana, on Highway 55 and 65. A boat launching ramp is located at the end of the road at Pointe-au-Chien and this provides marine access into the area through Grand Bayou and the St. Jean Charles Canal.

Purchase of the two tracts of marshland have been widely hailed by sportsmen as one of the finest land acquisitions made by the Louisiana Wild Life and Fisheries Commission. This is particularly true of waterfowlers who in the past have been denied opportunity to hunt because they were not members of private clubs, or were unable to afford private leases.

It is hoped that additional marshlands may be obtained in the years ahead to provide additional managed waterfowl hunting areas, thus reducing the gunning pressure on the new areas in order that they will hold concentrations of ducks throughout the season.

Purchase of these two areas by the Commission for public use is another milestone in providing present and future generations with outdoor recreational opportunities. ✣

WATER POLLUTION CONTROL 1969

Thomas J. Gilbert

RANKING HIGH, if not first, among all of Louisiana's natural resources is water. Bounded on the west by the Sabine River, on the east by the Mississippi and Pearl rivers, on the south by the Gulf of Mexico, traversed by a myriad of rivers, creeks and bayous, and amply dotted with lakes and bays, Louisiana is truly blessed with a bountiful supply of water.

Water of suitable quality is not only basic to man's very existence but also to a strong diversified economy and economic growth potential. Louisiana waters are the basis of its $100,000,000 annual seafood industry, the rapid industrialization springing up along our major fresh water streams, and a great part of the letters on your automobile license plate, "Sportsman's Paradise." For these reasons and countless others, not to mention man's God given right to live in an esthetically pleasing environment, we must endeavor to keep our waters suitable for all legitimate uses. Who is to help us do this? The Louisiana Stream Control Commission, chaired by the director of the Louisiana Wild Life and Fisheries Commission, is the water quality authority for the State of Louisiana where industrial waste discharges are concerned. The Division of Water Pollution Control, Louisiana Wild Life and Fisheries Commission, is the fact finding, enforcement and technical advisory arm of the Stream Control Commission. The Louisiana Department of Health enforces water pollution regulations relative to domestic wastes.

Clean water means good fishing and the key to clean water is stream pollution control. Pollution comes in many forms, but whatever its source it must be abated or eliminated entirely.

Louisiana's "Plan for Implementation" of water quality criteria requires that all waste discharges receive at least secondary or equivalent degree of treatment. Therefore, in 1969 we are faced with the arduous task of reviewing 125 to 130 industrial discharge permits of industries discharging into streams included in the criteria—all streams and tributaries thereof arising outside of Louisiana and/or emptying into the Gulf of Mexico.

Enforcement of water pollution laws and Louisiana Stream Control Commission regulations will be intensified statewide as man power permits. The Division of Water Pollution Control has requisitioned an airplane in order to fully utilize limited personnel assigned to water pollution abatement. Aerial surveillance has been invaluable in pollution control, particularly in the offshore and marshland oil producing areas.

The statewide water quality monitoring program will be continued by the Division of Water Pollution Control in 1969. This program was inaugurated in 1958 and includes monthly sampling at 63 stations on 30 streams. Each sample is analyzed for thirteen water quality parameters; several parameters will be added by the end of this year. Data from this monitoring becomes more valuable each day and is indispensable for the proper management of Louisiana's water quality.

As in the past, pollution caused fish mortalities will be investigated and corrective measures taken. Biological and chemical surveys will be conducted as the need arises.

Of particular interest to commercial fishermen and citizens of municipalities and water districts located on the lower Mississippi River will be the survey being conducted on the river by the Federal Water Pollution Control Administration. The purpose of this survey is to determine the source of the chemicals causing the taste and odor complaints found in the Mississippi River water from Baton Rouge downstream. Once the causative factors are found, abatement procedures can be taken by the Louisiana Stream Control Commission. A similar study is scheduled on the lower Calcasieu River.

All of our efforts in 1969 are geared to give you cleaner water in 1970. ✛

Polluted water such as this results in massive fish kills and also makes such water unsuited for human use, or industrial use.

Louisiana Firearms and Hunter Safety Program

Ben R. Brown

THE LOUISIANA FIREARMS and Hunter Safety program is one of the newer projects that the Louisiana Wild Life and Fisheries Commission has undertaken in order to serve the citizens of Louisiana.

This program consists of instruction in six subject areas, which encompasses a majority of the problems encountered in the hunting field. Along with the instruction, situations similar to those encountered while hunting are contrived and each pupil has his turn to overcome the obstacle. There is also training in gun handling, as well as actual gun handling and shooting on the part of the pupil.

Throughout the course, principles of conservation are included in the instruction, with the whys and wherefores of game laws. No hunter can possibly have the proper attitude about hunting if he is not familiar with the reasons and principles upon which these rules and laws are based.

No area of instruction is more important than that of the hunter's responsibility. Here hunter-landowner relations, courtesy and attitude are stressed.

In the past, the Commission has involved itself in gun safety clinics, which are good, but tend toward entertainment, rather than involving the pupil physically in the training.

Hunter safety education is no universal answer to the problems that hunters and gun owners are having to face more and more every day. It is a beginning though and we feel it is a good one. The Louisiana Firearms and Hunter Safety Program was set up under the leadership and guidance of the National Rifle Association. The N.R.A. has operated a program of hunter safety training for years. We join twenty-eight states and five Canadian provinces in the operation of a program on the state level under the N.R.A. guidance.

To Make the Best Better
I PLEDGE my HEAD to clearer thinking my HEART to greater loyalty my HANDS to larger service and my HEALTH to better living for my club my community and my country

Agent Gilmand J. Landry explaining some of the principles of safe handling and carrying guns.

Wildlife Instructor Hugh Burts demonstrating the proper way to carry guns while hunting abreast.

We are at present using our Commission personnel as instructors, along with volunteers, those N.R.A. instructors that have presented hunter safety training before we became involved in it. The bulk of the work will have to be done by the volunteers as our personnel do not have enough time to devote to hunter safety training. Volunteers can help bring the hunter safety message to all of Louisiana's hunters.

Our program is designed for and directed to the young hunter. National statistics reveal that young inexperienced hunters are the ones who are the most likely to be involved in a hunting mishap; therefore, we have tried to keep it on a level that can be understood and absorbed by a person in the eleven to eighteen year old age bracket. We do invite older persons to attend the training sessions and if possible to participate as instructors if they feel they have the time.

This training hopefully will be utilized by the young hunter in much the same way as driver education is by the young driver. We can train a person in the safe principles of hunting, but this does not make him a hunter any more than driver education makes drivers. Experience in the hunting field and application of the various principles learned in the class is the only way that anyone can truly call himself a good hunter.

All individuals, civic organizations, sportsmen's groups or garden clubs who are interested in finding out more about what is available through the Louisiana Firearms and Hunter Safety Program are invited to contact either their local

Agent Gilmand Landry demonstrating the proper way to enter and leave a boat.

Wild Life and Fisheries Commission district office or the Louisiana Firearms and Hunter Safety Program, P. O. Box 14526, Southeast Station, Baton Rouge, Louisiana 70808. All requests will be handled on a first come first serve basis.

The local district offices are listed below:

District I
Louisiana Wild Life and Fisheries Commission
P. O. Box 915
Minden, Louisiana 71055

District II
La. Wild Life and Fisheries Commission
P. O. Box 4004
Ouachita Station
Monroe, Louisiana 71201

District III
La. Wild Life and Fisheries Commission
P. O. Box 278
Tioga, Louisiana 71477

District IV
La. Wild Life and Fisheries Commission
P. O. Box 426
Ferriday, Louisiana 71334

District V
La. Wild Life and Fisheries Commission
1213 North Lakeshore Drive
Lake Charles, Louisiana 70601

District VI
La. Wild Life and Fisheries Commission
P. O. Box 593
Opelousas, Louisiana

District VII
La. Wild Life and Fisheries Commission
P. O. Box 14526
Southeast Station
Baton Rouge, Louisiana 70808

District VIII
La. Wild Life and Fisheries Commission
400 Royal Street
New Orleans, Louisiana 70130

New Orleans to Host Meetings

THE INTERNATIONAL Association of Game, Fish and Conservation Commissioners and the American Fisheries Society will hold their annual meetings in New Orleans, Louisiana, September 7-13, 1969.

These organizations, two of the largest conservation groups, hold their meetings at the same location each year. Joe L. Herring, Chief, Fish and Game Division, Louisiana Wild Life and Fisheries Commission, is conference chairman for the two organizational meetings this year.

Y'all Come to
NEW ORLEANS
IN '69
INTERNAT. ASSOC. OF GAME FISH & CONSERVATION COMM.
AMERICAN FISHERIES SOCIETY

Dr. Leslie L. Glasgow, Director, Louisiana Wild Life and Fisheries Commission, right, discussing the International Association of Game, Fish and Conservation Commissioners and the American Fisheries Society meeting with J. Millard Pawes, Chairman, Board of Natural Resources and Former Governor of Maryland, while attending the Southeastern Association of Game, Fish and Conservation Commissioners meeting in Baltimore.

The International Association will hold its meeting September 7-10, and will discuss state, regional, national and international problems and events. This meeting is primarily for the administrators and commission members and representatives of the various states.

September 10-13 the American Fisheries Society will hold its annual meeting. Latest research and development will be discussed at this conference.

Both meetings will have some of the outstanding conservationists attending and speaking at the various sessions. The public is invited to attend these meetings which will be held at the Roosevelt Hotel.

The Commission is also hosting the Annual Conference of South Central States Boating Law Administrators Association in New Orleans April 9-11.

DEER HUNT FO

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Young hunters who participated in the Youth Hunts, sponsored by the Lotti Wildlife Protective Association, are shown registering the guest book and writing down the numbers of their Big Game Licenses. For many of the youths who participated in the hunts it marked the first time they had hunted deer.

In pre-dawn darkness, the young hunters were welcomed by John W. Barton, H. B. "Cotton" Fairchild, John Kean, G. B. Cason and Dr. Leslie L. Glasgow. Fairchild is shown laying down the law to the young hunters to remain on their stands until the hunt was over and they would be picked up.

Two young hunters, their faces smeared with blood, talk with G. B. Cason, caretaker and manager of the huge tract of land bordering the Atchafalaya River where the Youth Hunts were conducted. A veteran of the area, he is telling them how sound conservation allowed the deer herds to build up over a period of years.

On November 23, opening day of the statewide deer hunting season, there was an unusual hunt in Pointe Coupee Parish. It was arranged by John W. Barton, John Kean, H. B. Fairchild and G. B. Cason, all members of the Lottie Wildlife Association. They decided that they would allow up to 100 hunters under 18 years of age to have first crack at the deer on their big tract of land bordering the Atchafalaya River.

They showed up and it looked like a convoy of automobiles and pick up trucks turning off U.S. Hwy. 190 to the road that leads to the camp. Naturally, there were a lot of fathers present. This was particularly true of some young hunters who couldn't have been more than nine years old. Some of them had shotguns that were taller than they were.

Cason had a table outside, lighted by a single naked bulb strung on a wire leading from the camp. They all signed in and presented their big game hunting licenses. They went milling around in the dark, gathering additional gear from the vehicles. It was heartwarming to hear the excited chatter as they waited for the briefing they were to receive before they were trucked to their stands.

John Barton gave them a solid talk on conservation in general. He told those young hunters that he had hunted in that area when he was a boy and the sight of a deer was rare, there were no wild turkeys, and black bear in that area just didn't exist.

He told them that the hunt they were about

The grin tells the story. This young boy has killed his first deer. There's little doubt that he will be a deer hunter the rest of his life. And he will be a conservationist as well, for during the pre-hunt briefing those who spoke stressed the importance of sound conservation and game management that made their hunt possible.

OUTHS STAGED

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to make was the result of a sound restocking program, strict enforcement, and a growing awareness on the part of hunters that backing the state's present management practices meant more game for them to hunt. He wished them all luck in the hunt, and then introduced "Cotton" Fairchild who told them how the hunt was to be conducted.

"Cotton" told them not to load their guns until they were ready to hunt. Above all, he told them, if they had a friend stationed about 150 yards down the dirt road and hear shooting, under no circumstances should they wander down to see if the friend had bagged a deer.

For safety, no rifles were allowed and it was strictly buck shot. We watched their faces during the briefing and they were dead serious. This was "big league hunting." Some had never hunted deer before, and they knew that they were being treated to a deer hunt on a carefully managed area.

John Kean also climbed up on the table and welcomed the young hunters to the camp. G. B. Cason also talked to the boys and told them he'd be moving around through the woods, working the dogs and doing everything possible to keep the deer moving. If they played by the rules and stayed where they were placed, he'd know where they were and stay out of range.

Leslie L. Glasgow, director of the Louisiana Wild Life and Fisheries Commission, was also on hand for the pep talks. His remarks as well as those by the others, will stick with those youngsters. ✢

Here is another successful young hunter. Judging from the serious expression on his face, he's thinking about future hunts and more deer. Each hunter who scored was allowed to keep his deer, hide and all. Those who missed went home empty-handed. There was no dividing of the kill as is the case in most camp hunting.

A young hunter, his face smeared with blood, watched his deer being weighed by team members of the Louisiana Cooperative Wildlife Unit, headed by John D. Newsom. All deer were weighed, aged and the entrails taken for research purposes.

One of the traditions of deer hunting is that when a hunter kills his first deer, he is initiated into the deer hunting fraternity by having his face bathed in blood from the deer he killed. Here, John Barton is shown smearing the face of a young hunter with deer blood.

Here, "Cotton" Fairchild, a former member of the Louisiana Wild Life and Fisheries Commission, teaches a young hunter another tradition of deer hunting. Any hunter who shoots at a deer and misses gets his shirt tail cut. There were enough shirt tails cut to make a patchwork quilt.

IN BRACKISH WATER

Fish Culture Studies in Louisiana

W. Guthrie Perry, Jr.

FISH CULTURE IN PONDS is an old profession. The Japanese are reported to have raised oysters as early as 2000 B.C. and the Romans about 100 years B.C. Records recovered from a tomb in Egypt indicated that fish were also taken from artificial ponds some time before 2000 B.C. Fish fry collections and transport in China date from 1639 B.C. Although fish farming is an old occupation it has advanced little over the years. Development has possibly been retarded by a lack of biological knowledge and because other inexpensive and abundant sources of fish and land-grown food have been available to feed the growing human population.

Practically all of the present knowledge about the cultivation of salt-water fishes has been derived from the fish farming operations in Europe and the Far East. Prompted by food shortages, these people were forced to seek new methods of food production. Now they are producing tremendous poundages of seafood in brackish waters, otherwise useless for fruit, grain or vegetables. India is producing up to 406 pounds of milk fish per acre in man-made ponds. Also, along the western coast of North Adriatic, numerous fish species are produced in salt-water ponds. Although the United States is not protein-deficient, we must look to the future.

All predictions of future population trends forecast rapid increases. In the United States alone the population is expected to be about 250 million people by 1975. With the greater populations there will be a greater demand for food, including seafood. In lower income countries the diet is limited, but as the economy increases the people will eat wider varieties of foods, thus encouraging consumption of seafoods. The 1965 figure for fish consumption of about 4.5 kilograms (10 pounds) per capita in the United States is expected to double by 1970. At present, it is reported that we are importing 3,750,000 tons of fish annually.

In 1966 the Refuge Division of the Louisiana Wild Life and Fisheries Commission began work on a research station for brackish water research relating to the ecology and culture of various estuarine species. A total of 51 ponds have been constructed on Rockefeller Wildlife Refuge in Grand Chenier, Louisiana. These ponds range in size from 0.1 acres to 5 acres. Ponds are currently being used for catfish, pompano and crawfish projects. We have found that pond construction in the marshes to be unlike any others. Here to begin with, the dirt has to be moved with a floating dragline or one on mats, as much of the soil is in a semi-fluid state and will not support a dragline. After the levees have been built they have to settle and dry for several months. Often shrinkage is as much as 60 percent. Some of our levees

Newly constructed ponds ranging in size from one-tenth acre to one-third acre are currently being used for catfish and pompano projects.

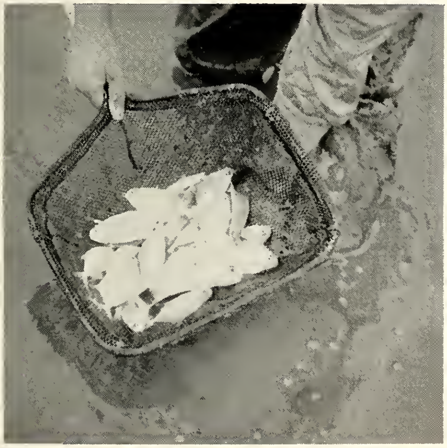
after two years of use have only a dried crust of 6 to 8 inches. The ponds are constructed in such a manner as to allow water collection from a saline bayou leading to the Gulf of Mexico or from a canal draining the freshwater marsh.

The Refuge Division is one of the cooperators in the Cooperative Fishery Unit in the School of Forestry and Wildlife Management at Louisiana State University. Participation by the Division has not only been financial but active assistance has been given to faculty and students. Several projects are conducted by Louisiana State University faculty and personnel of the Division.

ATLANTIC CROAKER

The initial fishery experiment conducted on Rockefeller Wildlife Refuge was a pilot study involving Atlantic croakers. The croakers were obtained in a natural canal system near the Gulf of Mexico and placed in one-third acre brackish water ponds. Eight months later the ponds were drained and growth data recorded. The croakers were approximately two to three inches long when stocked and seven to eight inches when harvested. Also, it was noted that most of the fish had advanced or ripe gonads when harvested.

We believe that croakers may be successfully cultured in brackish ponds in Louisiana. However, initial attention should be devoted to other species that are in greater demand.



Pompano are considered for pond culture studies in Louisiana. Pictured are fish grown in 0.1 acre experimental ponds at Rockefeller Wildlife Refuge.

POMPANO

Pompano, one of Louisiana's valued delicacies, were considered for pond culture studies on Rockefeller Wildlife Refuge. The supply of pompano is limited seasonally, and the cost of obtaining them is high. The raising of pompano successfully in ponds could result in a year-round supply and a new fishery industry for the state.

Pompano are known to live on small benthic organisms, crustaceans including crab larvae, diptera, mollusks, invertebrates eggs, small fish and scraps. Growth is estimated to be from 1 to 10 inches a year and weight of one pound obtained. In its natural environment this fish may reach weights of 6 to 7 pounds. One was recently caught by a Louisiana fisherman weighing 6.3 pounds (state record).

Pompano spawn offshore from February to September. April and May seem to be the peak months. Juveniles have been collected along the state's shores through November depending upon water temperatures.

Last year pompano were collected from Grand Isle, and transported by specially-equipped trucks to Rockefeller Wildlife Refuge. These fish were then stocked in ten one-tenth acre ponds.

This was the first attempt at pompano culture in Louisiana. The preliminary results of this experiment indicated that satisfactory growth is possible in Louisiana's coastal ponds. But additional research is necessary before any recommendations can be made concerning successful pompano culture.

Biologists weighing and measuring specimens obtained by beach seining. Much time has been devoted to the study of migrating patterns and taxonomy of fishes.

CATFISH

The rapid increase in fish farmers in Louisiana is a good indication that catfish are most desirable to grow as food fish. Numerous experiments have been conducted on feeding, reproductive needs, parasites, transport and harvest of freshwater catfish. However, only a few studies have been conducted involving the ecology of the species, and among these are only limited accounts of their collection in brackish habitats. Samples collected from our Pass-a-Loutre Waterfowl Management Area located at the mouth of the Mississippi River revealed monstrous blue catfish present. This is a brackish water area (area in which both sea

Preliminary results of a one year study indicated that channel catfish outgrew both white and blue catfish.

water and fresh water are mixed with a salinity of less than 30 parts per thousand). And, after talking to several catfish farmers located on areas that possessed only brackish water, it was decided to evaluate the production of the three most accepted catfish species for pond culture and determine which if any could be reared in these saline waters.

The three species selected were blue catfish, channel catfish, and white catfish. The white catfish is not native to our state, but is found in coastal areas of other states and possess qualities resembling the blue and channel catfish. All were collected from freshwater hatcheries and placed in the brackish water ponds with an equal amount amount of acclimatization.

The results of the catfish experiment proved very promising. The production of freshwater catfish in brackish water ponds, on an experimental basis, had not been tried before. In the past, fish culturists felt that channel catfish could not be grown in waters with a salinity of over 1.5 parts per thousand (thirty-five ppt is full sea strength). In the Rockefeller ponds the salinity ranged from 3 ppt to 10 ppt all season. Growth was good among all species. The channel and white grew best, averaging 1.25 to 1.03 pounds apiece. The blues averaged 0.63 pounds each. In freshwater, blues are known to grow slower the first year, but outgrow the channel and white the second growing season.

Ponds must be seined in order to adjust feeding rates. Fish are fed amounts based upon per cent body weight.

Some of the fish were eaten after the cessation of the experiment since it was feared that they would possess a marshy taste. The taste of all fishes was rated excellent and none had a muddy taste or offensive odor.

Experiments are now being conducted with brood catfish to determine the effects of salinity upon reproduction. Data collected thus far is too scanty at present to give any results or predictions of results.

CRAWFISH

Of the 29 species of crawfish found in Louisiana, two are highly valued as a food source. The red swamp crawfish and the white river crawfish have been cultured in Louisiana for over two decades.

Thus far, very little is known as to the effect of salinity upon crawfish production. The Louisiana marshes may offer a vast potential for future crawfish farmers. However, the southernmost boundary of the marshes contain varying amounts of salt water depending upon nearness to the Gulf of Mexico. Field experiments have begun at Rockefeller in order to better evaluate laboratory bioassey data already obtained by Commission biologist.

Not all of our fisheries work at Rockefeller has been centered around pond culture. Much time has been devoted to the study of the migrating patterns and taxonomy of fishes of the area. A good representation of the fish of the area have been prepared and placed on display at Rockefeller headquarters. Food habit and age and growth studies are being conducted on several estuarine species.

In summary, brackish-water aquaculture in this country is still in its infancy. However, other countries have successfully produced food fishes in brackish waters. Louisiana with its vast coastal marsh land could possibly possess a great potential in the United States in brackish water fish culture. This can only be acquired through the much needed brackish water fisheries research. ✠

Wildlife Shorts

Although several species of Louisiana sea fish are called "Blackfish", the Triple tail is a good sports fish and probably the best known. Fishermen ascribe to the Blackfish an add habit of "sunning itself" on its side on the surface of the water.

One of the most beautiful of all fishes, the Spanish Mackerel, is a familiar species of the Gulf of Mexico. Its burnished sides show a luster, flecked with gold, like the pearly lining of sea shells.

WILDLIFE-O-GRAM

The Utica Duxbak Corporation, manufacturers of hunting, fishing and outdoor clothing, has announced the addition of seven new subjects to its extensive free film library. The non-commercial films are loaned to sportsmens clubs, industrial groups and school classes free of charge. Clubs across the country may reserve these films simply by writing; Duxbak Film Librarian, Conklin, Labs and Bebee, Box 375 ,GM Circle, Syracuse, N. Y. 13201. For a list write Duane Pancoast at the above address.

Fishermen who consider the catalpa worm best for freshwater fishing have been calling and writing about "where to get the worms?" Many also would like to obtain Catalpa trees in order to raise their own bait. The Catalpa worm feeds off the foliage of the catalpa tree. We find that our own Wildlife Game Law Enforcement agent, E. J. "Blackie Cormier" of 217 Elizabeth Street, in Lafayette raises both the worms and the trees as a hobby and you may possibly obtain both from him. "Blackie" is also a veteran fishing lure maker.

A revised and enlarged edition of the classic book "The National Parks" by Freeman Tilden, has now hit the shelves of booksellers. The book, with a foreword written by George B. Hartzog, Jr., Director of the National Park Service, has been heralded by critics as "the best book ever written on a subject of perennial interest. It encompasses for the first time not only all of America's national parks, but also all our national monuments and historic buildings and sites with 225 new photographs. Published by Alfred A. Knopf.

Did you know that the Conservation Library Center at Denver can be of assistance to some of you in your research endeavors? The Center now provides On-demand Literature Searching for all Pittman-Robertson and Dingell-Johnson reports that have been indexed to date, and they will make every effort to make copy, provide the publication, or refer to source of P-R and D-J reports. By September, 1970, the Center hopes to issue an index and catalog to unpublished P-R and D-J reports.

For assistance, address: Fish and Wildlife Reference Service, Cons. Lib. Center, Denver Public Library, 1357 Broadway, 80203.

A statewide awards program to recognize outstanding contribution to conservation in Louisiana was announced today by the Louisiana Wildlife Federation, The Sears-Roebuck Foundation, and the National Wildlife Federation.

Requests for further information or official nomination, leaflets may be obtained by writing Arthur L. Darnsteadt, Jr., president, Louisiana Wildlife Federation, Box 16089 LSU Station, Baton Rouge, Louisiana, 70803.

WILDLIFE AND EDUCATION

Joe L. Herring

WILDLIFE MANAGEMENT is a relatively new branch of professional science. It is a complex field involving many other phases of scientific activities such as biology, botany, forestry, entomology, agriculture, water conservation, law enforcement, veterinary medicine and range management to name a few. It also calls upon the skills of statisticians, engineers, chemists, physicists and business administrators.

Basically, wildlife management attempts to control populations of wild animals for the benefit of society. Wildlife management may be defined as the act of making land and water produce sustained annual crops of wild game and fish for recreational, economical and aesthetic values.

Education is a way through which a person develops his abilities, attitudes and general behavior. It consists of the series of experiences, either selected or unselected, through which each person lives. Or, we may say that education is the result produced by instruction, training or study.

So, the Louisiana Wild Life and Fisheries Commission has an Education Section to instruct and inform the public about our valuable natural resources. It then becomes obvious that the "wildlife story" should be told to our present and future leaders.

The Education Section as it is, began in August 1960 and is one of the newer components of the Louisiana Wild Life and Fisheries Commission. Many individuals and groups including state and federal agencies have cooperated in seeing the "wildlife education" program get underway. The State Department of Education has cooperated in every way possible.

Principle objective of the educational program is to present to the youth of Louisiana the full work and activities of the Wild Life and Fisheries Commission; and the economical, social, recreational and aesthetic values that will be derived from personal knowledge of the state's fabulous wildlife resources.

The program has the primary objective of assisting school teachers, upon request, in supplying both visual and verbal knowledge of Louisiana's vast and important natural resources to their classes. Teachers may secure such wildlife programs by contacting Wildlife Instructors from the Commission district offices by mail or telephone. These are located in Minden, Monroe, Alexandria, Ferriday, Lake Charles, Opelousas, Baton Rouge and New Orleans.

Wildlife Instructors are well equipped with visual aid materials for use in the classroom. Projectors, 16 mm for movies and 35 mm for slides, latex specimens of reptiles, plastic animals, lecture easels, fish, shells and other specimens collected by the instructors are available. Visual aids, especially animals, attract and hold the attention of our youths. Students especially like the programs where lecturers bring live specimens. When available, lecturers prefer to show live animals to give students a better understanding of the animals in question.

LOUISIANA WILD LIFE & FISHERIES COMMISSION

One of the portable type displays that Louisiana Wild Life and Fisheries Commission Wildlife Instructors use for small meetings and festivals. Displays of this type attract much interest.

The question and answer periods after a lecture pertaining to Louisiana's wildlife resources are always of interest. Interest is so great that the length of programs has been reduced so that longer question and answer periods can be conducted.

Personnel have conferences and workshops with Louisiana primary and secondary teachers to discuss latest wildlife management techniques. Bob LaFleur, Chief, Water Pollution Division, assists wildlife instructors at this meeting.

Many subjects such as history, civics, geography, math and others may be integrated into a wildlife program. To study geography what could be more interesting than to study the states by waterfowl flyways. History could not have been made without wildlife. Early settlers came seeking furs, buffalo and other animals that roamed Louisiana. The fish and shellfish in our streams and coastal areas also provided food for early settlers.

LOUISIANA WILD LIFE AND FISHERIES

Marvin Harvey, Wildlife Agent explaining to viewers the various species of waterfowl that winter in Louisiana, part of Louisiana's valuable wildlife resources.

Teaching the wise use of our wildlife resources opens to our students an opportunity for a richer life. Citizens have more leisure time today than ever before and are seeking outlets for this time. Be it hunting, fishing, boating, skiing, camping, hiking, bird watching or just going to the woods, one may well be a better citizen if he knows how to wisely utilize his time for recreation.

Wildlife Instructors not only meet with school groups but with civic groups, sportsmen's groups, church groups, scouts and other clubs and organizations interested in conservation and the full appreciation of wildlife resources. Such groups wishing to have wildlife programs may contact their nearest district wildlife office.

Another increasingly important phase of the Education Section is the construction, erecting and manning of over thirty wildlife displays each year at fairs, festivals and other important events over the state. These displays vary in size according to the event.

Instructors have several small portable type displays that are put up and do not need personnel to man them. These usually show photographs, mounted specimens, habitat scenes and other types of cased visuals for educational purposes.

Many of the parish and area fairs have large spaces reserved for wildlife. At these the Instructors use large mounted specimens such as deer, bear and larger birds such as hawks, owls, etc. The large spaces permit the Instructor to tell a better story of Louisiana's wildlife resources. The Louisiana State Fair in Shreveport usually has one of the larger displays. When large spaces are used a Wildlife Instructor is always available to discuss the display with the public and answer the many questions that interested observers have.

These displays show Louisiana's seafoods and their production as well as management, bottomland hardwood habitat, upland habitat, waterfowl habitat and migrations, law enforcement and fur production to name a few.

Should you need a wildlife program, contact your nearest Wild Life and Fisheries Commission office and help is there. +

NEW RANK INSIGNIA FOR AGENTS

THE LOUISIANA Wild Life and Fisheries Commission, has authorized a new policy in rank for personnel of the Enforcement Division.

It is felt that the new policy that closely tracks that used by the State Police and other enforcement agencies will serve two purposes. One will allow the general public to know at a glance the rank of the enforcement agent with whom they are talking. The other purpose will bolster the morale of our enforcement agents.

Under the new program, the Chief of the Enforcement Division will have the rank of Colonel and will wear an eagle insignia on the shoulder of his uniform shirt and jacket. The only insignia to be worn on the collar will be LA on the right and HQ on the left collar. Uniform shirts will have red trimming or piping on the shoulder patch.

The Assistant Chief will have the rank of Lieutenant Colonel and will wear a silver oak leaf insignia on the shoulders of shirts and jackets. Collar insignia will be the same as that of the Chief. The uniform shirt will have the same trimming or piping as that of the Chief.

All Wildlife Agents IV are supervisors over two districts, will have the rank of major and will wear a gold oak leaf insignia on the shoulder of uniform shirt and jacket. Collar insignia will be LA on the right and WLF on the left.

Wildlife Agents III are supervisors over one district, will have the rank of Captain and will wear two gold bars insignia on the collar. As in the case of Agents IV, the uniform shirt will have red trimming or piping same as Agents IV.

Wildlife Agents II are over one parish, will have the rank of Lieutenant and will wear one gold bar insignia on shoulders of uniform shirts and jackets. The only collar insignia to be worn will be LA on the right and WLF on the left.

All Wildlife Agents I will wear silver badge and collar insignia. The collar insignia will be LA on the right and WLF on the left.

All enforcement personnel, regardless of rank, who have completed the Red Cross Course and have a certificate indicating they have, will wear the Red Cross patch on the left sleeve of the uniform shirt and jacket. Length of service will be indicated by the military-type "hash mark" on both sleeves and jackets, with each hash mark indicating five year's service with the Commission.

A Vanishing Part of Louisiana . . . . .

ITS STREAMS

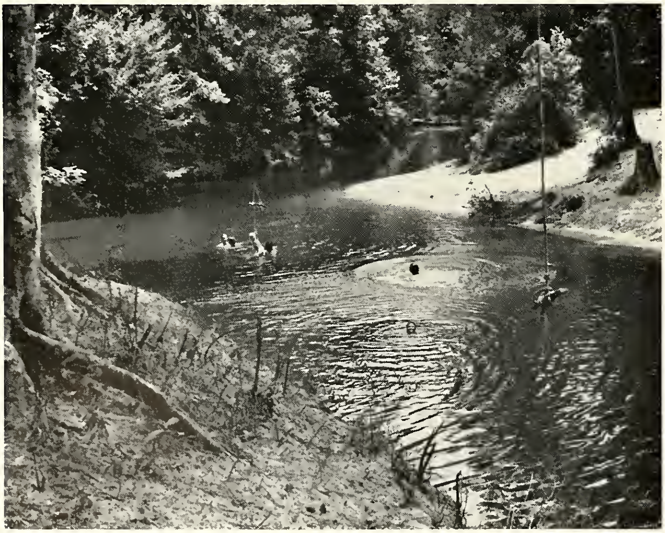
Gladney Davidson

AT THE PRESENT TIME there is a change taking place that many sportsmen and conservationists are unaware of. It is subtle but sinister and should be called to the attention of those who are vitally interested in Louisiana's streams and what is taking place concerning them.

As rapidly as our bottomlands are being cleared for the planting of soybeans, even more rapidly are our streams and rivers being altered. They are being changed by dredging, channel realignment, clearing and snagging, drainage improvements, impoundment for reservoirs, sand and gravel operations, siltation and turbidity resulting from poor soil management practices, diversion of water for irrigation purposes and even subdivision development. Many of these developments have occurred at such a slow pace and in such widely scattered locations within the state that the majority of us have failed to realize the overall effect as far as our stream fisheries are concerned. Now as we come to survey the natural streams of our state, we find that there are only a few—a very few—left and these few are in jeopardy of being lost. Every major river within the state has been altered to some extent. Many of our smaller streams are in the same predicament.

Perhaps the greatest value of a stream is its aesthetic value. Aesthetic value is difficult to describe and almost impossible to assess in monetary terms. Those streams still unspoiled by man's so-called progress still have a wild and natural beauty that is difficult to comprehend unless you have visited them.

Almost without exception, a river or stream is most valuable from a fish, wildlife and aesthetic viewpoint when preserved in its natural state. Only when in its natural state does a river or stream present the specific habitat requirements



The old swimming hole—one type of recreation afforded by a clean, clear, unpolluted and unaltered stream such as Six Mile Creek.

for native stream fish. Any alteration, however slight, may drastically effect the fish population. For an example, several years ago the Tchefuncte River, Bogue Falaya River and Bayou Lacombe supported an extensive sport fishery for native striped bass. Dredging, pollution and bank erosion altered the ecology of these streams and eliminated the native stripers. Recently the Louisiana Wild Life and Fisheries Commission has spent thousands of dollars trying to establish whether or not there is still a native population of striped bass and if not, to reintroduce the species into the state.

It is in these natural streams that we find fish that cannot be found elsewhere. Only in the natural streams of the Florida parishes are rockbass found. This fish has specific habitat requirements that are not easily met, and thus, has a restricted range within the state.

Catfish, spotted bass, warmouth, rockbass and crappie are probably the most sought after creek fish. The spotted bass prefers streams that have a swift current as well as plenty of natural hiding places. The rockbass prefers a similar habitat but its range in Louisiana is restricted to the streams of the Florida parishes. Catfish, crappie, warmouth and other sunfish are more tolerant species and may be found in most streams.

In recent years, pollution has been widely publicized as the cause for a declining fisheries; however, pollution is only one of the causes. Probably the greatest decline in stream fisheries has been the result of habitat alteration as the result of agricultural demand for quicker removal of water off the land. As a result of this demand more and more streams and rivers are being cleared and snagged, channelized, courses altered, and banks cleared. Gone are the meandering channels with riffle areas and deep holes. Gone are the logs and stumps that offered cover to the stream's fishes. Gone are the trees along the edges that offered shade and cooled the water. Here, instead of a scenic meandering stream rich with fish life and scenic beauty, is a relatively straight ditch, shallow and without shade trees or cover for the fish. Here, instead of a cool, clear stream with riffle areas and deep holes, is a deep ditch with a shallow uniform flow rate, high water temperatures and a heavy silt load. Here, instead of spotted bass, rockbass, bluegill, warmouth and crappie, are suckers, carp and other trash fish. When compared to a lake, any stream is relatively infertile. When related to fish, the effect of dredging, channelization, clearing and snagging or any other form of stream habitat alteration is disastrous. Damage to fish food organisms and to spawning areas is immense. Once a stream has thus been altered fish practically disappear.

Another form of stream destruction is impoundment of streams to create lakes. In many instances these impoundments are not justifiable. In many instances streams are impounded in areas where the topography is not suited for impoundments. In some instances lakes are created where there is no actual need and in some instances the proposed impoundment may not be economically justifiable yet the lake is constructed because the local citizenry do not vocally oppose the project. Although a lake presents more outdoor recreation potential than does a stream or river, we should realize that impoundment of a stream destroys it just the same as does channelization. Such an impoundment project is now proposed on Six Mile Creek in Vernon and Beauregard parishes. This, despite the fact that there are within an hour's driving time eight lakes already in existence. Is such an impoundment really necessary? Particularly, since Six Mile Creek is one of the few re-

Beautiful and scenic Bayou Dorcheat—one of our few remaining natural streams although plans have already been proposed to dredge and channelize it. Several impoundments have also been proposed.

Big Creek—typical of a stream that has been altered. Shallow flow is heavily laden with silt. Absence of trees near water causes high water temperatures. Would you like to fish this type stream?

maining unspoiled streams in the state and is high on the Louisiana Wild Life and Fisheries Commission priority list of streams to be preserved in its natural state. Currently in Louisiana there are probably less than three dozen fishable streams that exist in their natural state. On these few the flood control and drainage people are now making feasibility studies for possible future drainage or flood control programs. Currently, in particular, the Florida parishes' streams are in jeopardy as are the streams of southwest Louisiana.

Personnel of the Louisiana Wild Life and Fisheries Commission have initiated a program aimed at preservation of our few remaining natural streams or segments thereof. If you have a favorite stream or river you think should be preserved in its *natural state* jot down its name and location on a postcard along with your name and address and sent it to River Basins Section, Louisiana Wild Life and Fisheries Commission, P. O. Box 44095, Capitol Station, Baton Rouge, La., 70804. Your suggestion will be evaluated and every effort made to preserve your favorite stream. Without your help and support this program may never succeed. Won't you help preserve and save some of our Louisiana heritage?

Notifying the Louisiana Wild Life and Fisheries Commission is the initial step to take but best results can be obtained by stimulating local interest in preservation of the stream. Police Jury members, civic and social clubs, sportsmen's groups and many other organizations will help. In those individuals and groups is the drive needed to save those vanishing streams. +

Floating Six Mile Creek is difficult but provides quality fishing for those fishermen willing to work for their fish.

Scaup Regulations

The Special scaup (dos gris) season established by the U.S. Fish and Wildlife Service is scheduled to begin on January 16, 1969 and extend through January 31, 1969. Only the open waters of Lake Pontchartrain, Lake Borgne, Lake Cataouatchie, and Lake Salvador will be open to scaup hunting during this special season in Louisiana.

No other areas in the state will be open during this period. Furthermore the taking of scaup from connecting waterways between these four lakes, such as bayous, canals, or marshes is prohibited. Shooting from surrounding land areas is also illegal. To participate in this special season you must plan to hunt only the open waters of these four lakes from boat or blind.

The daily bag limit will be five scaup and the possession limit will be ten. No ducks other than scaup can be taken. Shooting hours will be the same as those during the regular duck season.

When the Bureau of Sport Fisheries and Wildlife first announced that a special scaup season would be allowed in Louisiana it was assumed by duck hunters that this would be on a statewide basis. This, however, is not the case since the shooting will be limited to the four lakes only. Participation during the season is expected to be very light since hunting conditions on these bodies of water will be difficult, if not impossible in bad weather. Hunting from blinds or from small boats will be hazardous since even a small amount of wind creates rough water conditions in a matter of minutes on the large bodies of open water.

The establishment of this season again demonstrates the complete lack of understanding that the U. S. Bureau of Sport Fisheries and Wildlife has about duck hunting conditions in Louisiana. While ignoring the recommendations of the Louisiana Wildlife and Fisheries Commission on duck hunting regulations that would have greatly benefited the sportsmen this year the Bureau chose to establish this special scaup season which will mean virtually nothing to the great outdoor sport of waterfowling.

It should also be pointed out that the bonus scaup provision allowed duck hunters in the coastal section for several years during the regular duck season has been cancelled by the Federal Bureau. In previous years this bonus scaup provision has provided much hunting opportunity for coastal duck hunters and the arbitrary cancellation by the Bureau has been met with widespread resentment on the part of sportsmen in South Louisiana, particularly in the New Orleans area.

American Beautyberry Valuable Game Food Plant

L. K. Halls and S. W. Oefinger, Jr.*

Autumn comes and questions start popping up about the pretty forest shrub laden with clusters of shiny purple berries. What's its name? What good is it?

The plant is, of course, American beautyberry (*Callicarpa americana* L.). Sometimes it's called French mulberry. Its leaves, twigs, and berries are food for wildlife of many kinds.

This 2- to 8-foot deciduous shrub thrives on a wide variety of forest sites from east Texas to Maryland. It grows well in shade but does best in the open or beneath high, fairly thin pine canopies. In late March, it puts out new green leaves oppositely arranged on the twig. Growth is essentially completed by July, but when portions of the current season's growth are removed some of the lateral buds break dormancy and form new twigs.

Small bluish flowers form in the leaf axils mostly during June but occasionally through the summer. The conspicuous berries, the real trademark of the plant, become noticeable in July and mature from August to November. Many persist through the early winter and a few until spring. The rootstocks resprout if the stems are killed by woods fires.

The plants do not compete with trees being grown for saw logs or pulpwood.

Dan Lay, Texas Parks and Wildlife Department, considers the berries important quail food during the winter, and says they are frequently eaten by deer from August through October and to a lesser extent at other times of the year. Louis Brunett, Louisiana Wildlife and Fisheries Commission, lists it as a squirrel food. In his doctoral thesis at Louisiana State University, Eugene Hastings mentions that it is eaten by raccoon, opossum, fox, and domestic livestock.

The berries are readily available in August and September, a time when other wild fruits are scarce. Furthermore, their high water content (approximately 80 percent) can be important to wildlife during these usually dry months.

The plants begin to fruit at a very early age. In research at the Stephen F. Austin Experimental Forest near Nacogdoches, Texas, plants have been grown for 4 years beneath a medium canopy of pine trees and in the open. The plants were started in a nursery from seed or cuttings and were transplanted to the forest after one growing season. Many young plants formed fruit the first year in the forest. In all 4 years, plants in the open produced much more fruit than those beneath trees. There was no difference in yields between plants originating from seed or from cuttings. Yields increased each succeeding year and during the fourth year the average production on plants growing in the open was 3.8 pounds (dry weight) per plant, and on those beneath trees 0.14 pound. Thus, American beautyberry has a reasonably good fruiting capacity in stands of timber but a much higher potential in managed forest openings.

The fruits are a relatively high energy food. Studies at Louisiana State University by C. W. Caillouet, Jr., and by Eugene Hastings have shown fat contents ranging from 6 to 11 percent. In crude protein, phosphorus, and calcium, the berries are generally marginal or deficient for most game.

The twigs and leaves are eaten by deer and cattle during the growing season and occasionally in early winter. As a deer browse plant it is considered medium choice. But as with other

The fruit, leaves, and twigs of American beautyberry supply food for many kinds of wildlife. The plant also makes an attractive shrub around the house.

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*The authors are on the staff of the Wildlife Habitat and Silviculture Laboratory, which is maintained at Nacogdoches, Texas, by the Southern Forest Experiment Station in cooperation with Stephen F. Austin State College.

In the open, American beautyberry fruits abundantly at an early age.

medium-choice plants it may comprise a major part of deer diet when first-choice feeds are scarce. When both deer and cattle use the plants very heavily, both browse and fruit yields are likely to be lessened, but the plants are seldom killed.

During the period of rapid growth in spring, the new leaves and twigs have enough crude protein, phosphorus, and calcium to meet the maintenance and growth requirements for both deer and cattle. When growth ceases, the protein and phosphorus content drops below the amount needed by the animals but the calcium remains adequate. Leaves and twigs from a plant that has been through a recent fire are higher than average in nutrient content and palatability.

American beautyberry is easily propagated. Seed collected in the fall can be sown in the field or nursery the next spring. Plants grown in the nursery can be outplanted the following winter. Losses from transplanting are usually few. The plants also are easily rooted from stem cuttings. The best time to take cuttings is September. If cuttings made then are propagated in the greenhouse they can be outplanted in late winter.

Plants grow well beneath pine trees but yield less forage and fruit than when growing in the open.

American beautyberry is an attractive plant for yards and parks. Its brightly colored fruit, its ease of propagation, and its ability to grow in the shade and on a variety of sites with very little culture all add to its popularity. ✣

POND SHRIMP CULTURE

A recent comprehensive report on pond culture of shrimp on Grand Terre Island between 1962 and 1968 was prepared by Jerry G. Broom of the Marine Biological Laboratory and presented at the recent 21st Annual Session of the Gulf and Caribbean Fisheries Institute in Miami.

"Pond culture experiments were started in the spring of 1962. Brown shrimp and white shrimp were cultured in quarter-acre ponds. Juvenile and postlarval shrimp, obtained from several sources, were stocked at different rates and several types of feeds were used," according to Broom.

"The shrimp were fed a specific percentage of their body weight daily. A sample of 50 shrimp was taken each week, weighed and returned to the pond. Feeding rates were adjusted to the increased growth without regard to possible mortalities.

"The best feeding rates tested were five per cent and 10 per cent individual body weight at a stocking rate of 20,000 shrimp per acre," Broom said.

Broom said that mortalities occurred while catching the stock, sampling, and harvesting at the end of each experiment. It was found that white shrimp were more difficult to keep alive than brown shrimp. During stocking, when juveniles were being counted into the ponds, it was found that two to three hundred 2 to 3-inch browns could be held for a short period in five gallons of water.

Only one hundred white shrimp could be held in the same quantity of water. White shrimp handled early in the day had less mortalities than when stocked later in the day.

The recent impetus in pond culture research has added greatly to the feasibility of commercial shrimp culture. When spawning and rearing techniques are further refined, profitable shrimp culture in the estuaries of the Gulf of Mexico will become commonplace.

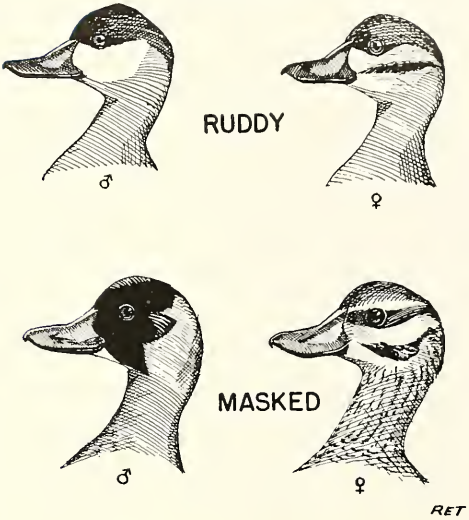
The Louisiana Wild Life and Fisheries Commission's Marine Research Laboratory now has adequate research facilities for pond culture of marine and brackish water animals, Broom said.

In 1968, 16 experiments, concerning shrimp feeds, feeding rates and stocking rates, were successfully completed. Future research will expand these experiments and will also include spawning and maximum population density studies. Hopefully, this work will provide some relationship between natural and cultured shrimp populations. This information should be very helpful to the shrimp fishing industry, he concluded.

The Bird of the month

THE RUDDY DUCK

Oxyura jamaicensis



WHILE NOT HIGH on the sportsman's list of preferred species of waterfowl this is an interesting little duck and it sometimes occurs in relatively large numbers in some of the larger freshwater lakes throughout the state.

Many common names have been applied to this bird, such as "spiketail", "stifftail", "bullneck", "butterball", "sleepyhead", etc. and these are somewhat descriptive, however the bird was named for the coloration of the male in breeding plumage when the back, neck and breast are a rich, ruddy-red. The winter plumage is a grayish-brown, but there is one characteristic which remains the same, a short tail made up of stiff feathers which is often held up perpendicular to the surface of the water, and this is a very good identification mark for this duck in our state. There is one closely related and similar appearing species, the Masked Duck, also shown in the illustration, but Dr. George H. Lowery, Jr., in his book LOUISIANA BIRDS, shows only one record for Louisiana and that was a female shot near Lake Charles on December 23, 1933.

In both species the legs are placed far to the rear, making walking on land very difficult indeed, and the necks are thick and short. The stiff tail feathers are also characteristic of both species and the tail is often cocked upright while the head is drawn back against the chest and the little duck appears to be strutting in the water in much the same fashion as a turkey gobbler will strut on land.

The male Ruddy Duck has white cheek patches and a dark crown while the female has sort of dirty white or dark cream cheek patches crossed by one dark line beneath the eye. Both are a brownish-gray in color before the male assumes his spring plumage of reddish hue with a black cap topping the ensemble.

The male Masked Duck has the black mask which gives him his name and he also has white wing patches which differentiates him from the Ruddy Duck. The females are similar in appearance but the female Masked Duck has two dark stripes across the light colored cheek patch, the upper one running through the eye, and she also has the white wing patch seen on her mate.

Anyone sighting or shooting a Masked Duck in Louisiana should certainly report it because of its extreme rarity in our area and the specimen should be preserved if at all possible.

The Ruddy is a fast flying little duck although it has considerable difficulty in taking off and must make a long run on the surface of the water. Perhaps this influences its habit of sinking out of sight like a grebe when disturbed rather than taking to the air.

The female has a claim to fame in that the eggs are very large, being about the same size as those of the Canvasback, a bird more than twice its size. In fact the clutch of eggs may weigh several times the weight of the bird which layed them. The eggs are laid in a closely woven nest over the water in thick reeds or other marsh plants in the various midwestern states or Canadian provinces although it has been reported as far south as central Texas.

About three-fourths of the food of the Ruddy Duck is composed of vegetative material such as the seeds, leaves, stems, tubers, etc. of various aquatic plants including sedges, wild rice, pondweeds, duckweed, pond lily, sago, etc., and in the winter they like widgeon grass. The remaining portion of its diet includes snails, soft-bodied aquatic insects, mussels, worms, and even small fishes at time.

The Ruddy Duck is not particularly wary and has not achieved a reputation with the duck hunters either for its sporting qualities nor gastronomic desireableness, however it is a very interesting bird and perhaps if both sportsmen and/or birdwatchers paid closer attention to it we could turn up some new records for its rare relative the Masked Duck from the tropical regions to the south of us.

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Photo by Robert Dennie

QUAIL HUNTING REMAIN ONE OF LOUISIANA'S TOP OUTDOOR SPORTS

Heading Out

Hunter surveys reveal that during the past thirteen years, the number of quail hunters has shown only a slight increase. However the number of birds bagged has increased. Quail populations are influenced by habitat conditions and widely fluctuate when favorable changes are brought about within the habitat. Changes in land use are responsible for the static number of quail hunters and annual production.